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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/534,221 | 10/24/2005 | Klaus Frommann | HM/625PCT | 8464 |

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| EXAMINER | |
|---|---|
| FOGARTY, CAITLIN ANNE | |
| ART UNIT | PAPER NUMBER |
| 1793 | |
| MAIL DATE | DELIVERY MODE |
| 01/21/2010 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/534,221 | FROMMANN ET AL. | |
| | Examiner | Art Unit | |
| | CAITLIN FOGARTY | 1793 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *17 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-4,6-11,13 and 14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-11,13 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/17/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 17, 2009 has been entered.

### *Status of Claims*

2. Claims 1 – 4, 6 – 11, 13, and 14 are pending where claims 1 and 9 have been amended. Claims 5 and 12 have been cancelled.

### *Status of Previous Rejections*

3. The 35 U.S.C. 103(a) rejection of claims 1 – 4, 6 – 11, 13, and 14 as being unpatentable over Fukaya et al. (JP 07-275920) has been maintained.

### *Priority*

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Rejections - 35 USC § 112*

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1 and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 9 recite the new claim limitation that the descaling and/or cleaning of a metal casting are completed "only by plasma descaling and/or plasma cleaning" which does not have literal support in the original disclosure. The original disclosure does not recite that the descaling and/or cleaning of a metal casting is limited *only* to plasma descaling and/or plasma cleaning. Although the original disclosure does not recite any additional methods of descaling and/or cleaning of a metal casting, the mere absence of a positive recitation is not basis for an exclusion. See MPEP 2173.05(i). Therefore, the new claim limitations in claims 1 and 9 constitute new matter.

***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1 – 4, 6 – 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukaya et al. (JP 07-275920).

With respect to instant claims 1 – 4 and 9, the abstract, paragraphs [0009] to [0012], [0021], [0025] (see English machine translation), and Fig. 1 of Fukaya disclose a method and device for continuously descaling a metal strip (metal casting), a hot-rolled strip made of stainless steel, where the metal strip is subjected to a pulling roll

(stretcher-and-roller level) (9-1) before it is guided in a direction of conveyance through a device inside which it is subjected to plasma descaling. Although it is not specifically mentioned in Fukaya, it would have been obvious to one of ordinary skill in the art that the pulling roll would impart a high degree of flatness to the metal casting because as the metal strip is pulled it will become more flat. In addition, paragraphs [0020]-[0025] and Fig. 1 of Fukaya teach that the surface roughness of the metal strip is inspected after passing through the device for plasma descaling ([0023]) so the process can be adjusted to change the surface roughness of the processed metal strip using the vacuum arc controller (26) and computer (27). Also, Fukaya discloses in [0025] that the processing speed of the method is 10 – 50 mpm in order to obtain the desired surface roughness. Therefore, the speed with which the metal casting is guided through the device for plasma descaling is specified in the closed-loop control in dependence on the inspection so the desired quality of the descaling may be obtained.

Fukaya differs from amended instant claims 1 and 9 because it does not specifically teach that plasma descaling and/or plasma cleaning are the only steps or devices in the method or device of descaling and/or cleaning of a metal casting. Rather, [0008] and [0015]-[0018] of Fukaya teach that the descaling and/or cleaning of a metal casting of Fukaya comprises plasma descaling along with one of more of shot blasting, grinding, or light acid pickling which also descale the metal casting. However, it would have been obvious to one of ordinary skill in the art to omit the additional step of one or more of shot blasting, grinding, or light acid pickling with the expectation of possible residual scale on the metal casting ([0035]). See MPEP 2144.04 II.

Fukaya also differs from instant claims 1 – 4 and 9 because it does not specifically teach that a tensile force is exerted such that a tensile stress arises in the metal casting which corresponds to at least 10% of the yield point of the metal casting material. However, it would have been obvious to one of ordinary skill in the art that a tensile force is exerted such that a tensile stress arises in the metal casting because as the metal strip is pulled and rolled a tensile force is exerted on the strip. Also, it would have been obvious to one of ordinary skill in the art to apply enough tensile force to the metal casting to achieve a desired percentage of the yield point of the casting metal after routine optimization through experimentation. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation (see MPEP 2144.05).

Fukaya differs from instant claim 4 because it does not disclose that the metal casting is discontinuously guided through the device for plasma descaling. However, it would have been obvious to one of ordinary skill in the art that if the method is performed continuously, it may also be performed discontinuously. For example, if the process is stopped to change the speed or to switch on or off electrodes, it would be performed discontinuously which is within the scope of Fukaya.

In regards to instant claims 6, 7, and 13, Fukaya discloses the limitations of claims 1 and 9 as discussed above. Fukaya differs from instant claims 6 and 7 in that it does not teach that after descaling the metal is subjected to heating, in particular induction heating, and then coated with liquid metal, in particular a hot galvanizing. However, it would have been obvious to one of ordinary skill in the art to subject the

metal strip to induction heating prior to hot galvanizing because it is a well known way to heat metal and it would be useful in order to prepare the strip for hot galvanizing, which occurs at a higher temperature. Additionally, it would have been obvious to one of ordinary skill in the art to subject the metal strip to hot galvanizing, a common technique for treating stainless steel, following descaling and induction heating because coating the stainless steel strip will make the metal more corrosion resistant and therefore extend the lifetime of the product.

In regards to instant claims 8 and 14, dependent on claims 1 and 9, respectively, paragraph [0028] of Fukaya teaches that after descaling the metal strip it may be cold-rolled. Therefore, it would have been obvious to one of ordinary skill in the art to place a device for cold-rolling after the plasma descaling device in the direction of conveyance in order to perform cold-rolling.

Regarding instant claim 10, dependent on claim 9, paragraph [0020] and Fig. 1 and 2 of Fukaya teach that the device for plasma descaling has a treatment chamber under vacuum inside which a number of modularly built electrodes are arranged in the transit direction of the metal strip.

In regards to instant claim 11, dependent on claim 10, paragraphs [0020] and [0023] and Fig. 1 and 2 of Fukaya disclose that a discharge mode is given to each unit electrode individually and alternatively and therefore, the individual electrodes can be switched on or off independently of one another in dependence on the degree of scaling and/or degree of contamination of the surface of the metal strip and independence on

the speed with which the metal strip passes through the plasma device for plasma descaling.

***Response to Arguments***

9. Applicant's arguments filed December 17, 2009 have been fully considered but they are not persuasive.

*Arguments are summarized as follows:*

The independent claims have been amended to be limited to only plasma descaling and/or plasma cleaning. Fukaya et al. on the other hand carry our sand blasting of the strip in addition to descaling of the electrodes. Thus, the presently claimed invention is distinguishable from the teachings of Fukaya et al.

*Examiner's responses are as follows:*

As discussed above in regards to amended claims 1 and 9, Fukaya does not specifically teach that plasma descaling and/or plasma cleaning are the only steps or devices in the method or device of descaling and/or cleaning of a metal casting. Rather, [0008] and [0015]-[0018] of Fukaya teach that the descaling and/or cleaning of a metal casting of Fukaya comprises plasma descaling along with one of more of shot blasting, grinding, or light acid pickling which also descale the metal casting. However, it would have been obvious to one of ordinary skill in the art to omit the additional step of one or more of shot blasting, grinding, or light acid pickling with the expectation of possible residual scale on the metal casting ([0035]). See MPEP 2144.04 II.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit 1793

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